

10/500,023

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NEWS 2 "Ask CAS" for self-help around the clock  
NEWS 3 FEB 27 New STN AnaVist pricing effective March 1, 2006  
NEWS 4 MAY 10 CA/CAPLUS enhanced with 1900-1906 U.S. patent records  
NEWS 5 MAY 11 KOREAPAT updates resume  
NEWS 6 MAY 19 Derwent World Patents Index to be reloaded and enhanced  
NEWS 7 MAY 30 IPC 8 Rolled-up Core codes added to CA/CAPLUS and  
USPATFULL/USPAT2  
NEWS 8 MAY 30 The F-Term thesaurus is now available in CA/CAPLUS  
NEWS 9 JUN 02 The first reclassification of IPC codes now complete in  
INPADOC  
NEWS 10 JUN 26 TULSA/TULSA2 reloaded and enhanced with new search and  
and display fields  
NEWS 11 JUN 28 Price changes in full-text patent databases EPFULL and  
PCTFULL  
NEWS 12 JUL 11 CHEMSAFE reloaded and enhanced  
NEWS 13 JUL 14 FSTA enhanced with Japanese patents  
NEWS 14 JUL 19 Coverage of Research Disclosure reinstated in DWPI  
NEWS 15 AUG 09 INSPEC enhanced with 1898-1968 archive  
NEWS 16 AUG 28 ADISCTI Reloaded and Enhanced  
NEWS 17 AUG 30 CA(SM)/CAPLUS(SM) Austrian patent law changes  
NEWS 18 SEP 11 CA/CAPLUS enhanced with more pre-1907 records  
NEWS 19 SEP 21 CA/CAPLUS fields enhanced with simultaneous left and right  
truncation  
NEWS 20 SEP 25 CA(SM)/CAPLUS(SM) display of CA Lexicon enhanced  
NEWS 21 SEP 25 CAS REGISTRY(SM) no longer includes Concord 3D coordinates  
NEWS 22 SEP 25 CAS REGISTRY(SM) updated with amino acid codes for  
pyrrolysine  
NEWS 23 SEP 28 CEABA-VTB classification code fields reloaded with new  
classification scheme  
  
NEWS EXPRESS JUNE 30 CURRENT WINDOWS VERSION IS V8.01b, CURRENT  
MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP),  
AND CURRENT DISCOVER FILE IS DATED 26 JUNE 2006.  
  
NEWS HOURS STN Operating Hours Plus Help Desk Availability

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NEWS IPC8        For general information regarding STN implementation of IPC 8  
NEWS X25         X.25 communication option no longer available

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FILE 'HOME' ENTERED AT 12:46:21 ON 08 OCT 2006

=> file reg

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	0.21	0.21

FILE 'REGISTRY' ENTERED AT 12:46:36 ON 08 OCT 2006

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STRUCTURE FILE UPDATES:    6 OCT 2006    HIGHEST RN 909850-02-8

DICTIONARY FILE UPDATES:   6 OCT 2006    HIGHEST RN 909850-02-8

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TSCA INFORMATION NOW CURRENT THROUGH June 30, 2006

Please note that search-term pricing does apply when conducting SmartSELECT searches.

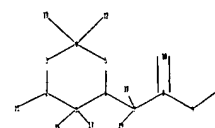
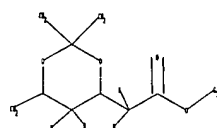
REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/ONLINE/UG/regprops.html>

=>

Uploading C:\Program Files\Stnexp\Queries\10501250.str

10/500,023



chain nodes :  
7 8 9 10 11 12 13 15 16 17 18 19  
ring nodes :  
1 2 3 4 5 6  
chain bonds :  
1-16 1-17 2-11 4-12 4-13 6-7 7-8 7-18 7-19 8-9 8-10 9-15  
ring bonds :  
1-2 1-6 2-3 3-4 4-5 5-6  
exact/norm bonds :  
1-2 1-6 2-3 3-4 4-5 5-6 8-9 8-10 9-15  
exact bonds :  
1-16 1-17 2-11 4-12 4-13 6-7 7-8 7-18 7-19

G1: Cy, Ak

Match level :  
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:CLASS 8:CLASS 9:CLASS  
10:CLASS 11:CLASS 12:CLASS 13:CLASS 15:CLASS 16:CLASS 17:CLASS  
18:CLASS 19:CLASS

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L1           STRUCTURE UPLOADED

=> s l1

SAMPLE SEARCH INITIATED 12:46:54 FILE 'REGISTRY'  
SAMPLE SCREEN SEARCH COMPLETED -       217 TO ITERATE

100.0% PROCESSED       217 ITERATIONS                   20 ANSWERS  
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS:   ONLINE   \*\*COMPLETE\*\*  
                          BATCH    \*\*COMPLETE\*\*

PROJECTED ITERATIONS:       3457 TO       5223  
PROJECTED ANSWERS:           132 TO       668

L2           20 SEA SSS SAM L1

=> s l1 ful

FULL SEARCH INITIATED 12:47:00 FILE 'REGISTRY'  
FULL SCREEN SEARCH COMPLETED -       3896 TO ITERATE

100.0% PROCESSED       3896 ITERATIONS                   424 ANSWERS  
SEARCH TIME: 00.00.01

L3           424 SEA SSS FUL L1

=> s l3 and (process or synthes? or make or made or prepar? or method)

65 PROCESS  
15 PROCESSES  
80 PROCESS  
      (PROCESS OR PROCESSES)  
1963 SYNTHES?  
5 MAKE  
1 MAKES  
6 MAKE  
      (MAKE OR MAKES)

17 MADE  
212 PREPAR?  
6 METHOD

L4           0 L3 AND (PROCESS OR SYNTHES? OR MAKE OR MADE OR PREPAR? OR  
METHOD  
              )

=> file caplus

COST IN U.S. DOLLARS

SINCE FILE	TOTAL
ENTRY	SESSION
197.26	197.47

FULL ESTIMATED COST

FILE 'CAPLUS' ENTERED AT 12:49:25 ON 08 OCT 2006

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FILE COVERS 1907 - 8 Oct 2006 VOL 145 ISS 16  
FILE LAST UPDATED: 6 Oct 2006 (20061006/ED)

Effective October 17, 2005, revised CAS Information Use Policies apply. They are available for your review at:

<http://www.cas.org/infopolicy.html>

=> s 13

L5 185 L3

=> s 14 and (process or syntheses? or make or made or prepar? or method)

0 L4  
2318870 PROCESS  
1574126 PROCESSES  
3460959 PROCESS  
(PROCESS OR PROCESSES)  
1566172 SYNTHES?  
242678 MAKE  
187983 MAKES  
417542 MAKE  
(MAKE OR MAKES)  
1235940 MADE  
26 MADES  
1235961 MADE  
(MADE OR MADES)  
1689808 PREPAR?  
125915 PREP  
2217 PREPS  
127926 PREP  
(PREP OR PREPS)  
2037273 PREPD  
17 PREPDS  
2037285 PREPD  
(PREPD OR PREPDS)  
129537 PREPG  
12 PREPGS

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129548 PREPG
      (PREPG OR PREPGS)
2748282 PREPN
  205962 PREPNS
2903633 PREPN
      (PREPN OR PREPNS)
4822113 PREPAR?
      (PREPAR? OR PREP OR PREPD OR PREPG OR PREPN)
3220224 METHOD
1308698 METHODS
4160145 METHOD
      (METHOD OR METHODS)
L6      0 L4 AND (PROCESS OR SYNTHES? OR MAKE OR MADE OR PREPAR? OR
METHOD  )
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=> s 15 and (process or synthes? or make or made or prepar? or method)
2318870 PROCESS
1574126 PROCESSES
3460959 PROCESS
      (PROCESS OR PROCESSES)
1566172 SYNTHES?
  242678 MAKE
  187983 MAKES
  417542 MAKE
      (MAKE OR MAKES)
1235940 MADE
  26 MADES
1235961 MADE
      (MADE OR MADES)
1689808 PREPAR?
  125915 PREP
  2217 PREPS
  127926 PREP
      (PREP OR PREPS)
2037273 PREPD
  17 PREPDS
2037285 PREPD
      (PREPD OR PREPDS)
  129537 PREPG
  12 PREPGS
  129548 PREPG
      (PREPG OR PREPGS)
2748282 PREPN
  205962 PREPNS
2903633 PREPN
      (PREPN OR PREPNS)
4822113 PREPAR?
      (PREPAR? OR PREP OR PREPD OR PREPG OR PREPN)
3220224 METHOD
1308698 METHODS
4160145 METHOD
```

10/500,023

(METHOD OR METHODS)  
L7 180 L5 AND (PROCESS OR SYNTHESIS? OR MAKE OR MADE OR PREPARED? OR  
METHOD )

=> s 17 and catalyst  
737107 CATALYST  
739685 CATALYSTS  
946271 CATALYST  
(CATALYST OR CATALYSTS)  
L8 29 L7 AND CATALYST

=> s 17 and phase transfer catalyst or phase transition catalyst  
1706315 PHASE  
356162 PHASES  
1856205 PHASE  
(PHASE OR PHASES)  
789993 TRANSFER  
26222 TRANSFERS  
802718 TRANSFER  
(TRANSFER OR TRANSFERS)  
737107 CATALYST  
739685 CATALYSTS  
946271 CATALYST  
(CATALYST OR CATALYSTS)  
7933 PHASE TRANSFER CATALYST  
(PHASE (W) TRANSFER (W) CATALYST)  
1706315 PHASE  
356162 PHASES  
1856205 PHASE  
(PHASE OR PHASES)  
952386 TRANSITION  
257920 TRANSITIONS  
1063968 TRANSITION  
(TRANSITION OR TRANSITIONS)  
737107 CATALYST  
739685 CATALYSTS  
946271 CATALYST  
(CATALYST OR CATALYSTS)  
61 PHASE TRANSITION CATALYST  
(PHASE (W) TRANSITION (W) CATALYST)  
L9 64 L7 AND PHASE TRANSFER CATALYST OR PHASE TRANSITION CATALYST

=> dup rem 19 18  
PROCESSING COMPLETED FOR L9  
PROCESSING COMPLETED FOR L8  
L10 90 DUP REM L9 L8 (3 DUPLICATES REMOVED)  
=> d 110 ibib hitstr abs 1-90

10/500,023

L10 ANSWER 2 OF 90 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2006:296026 CAPLUS  
DOCUMENT NUMBER: 144:331255  
TITLE: Process for the preparation of  
pyrrole derivative atorvastatin  
INVENTOR(S): Joshi, Narendra Shriram; Bhirud, Shekhar Bhaskar;  
Damle, Subhash Vishwanath  
PATENT ASSIGNEE(S): Glenmark Pharmaceuticals Limited, India  
SOURCE: PCT Int. Appl., 20 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006032959	A2	20060330	WO 2005-IB2348	20050805
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
PRIORITY APPLN. INFO.:			US 2004-599382P	P 20040806
			US 2004-599383P	P 20040806

OTHER SOURCE(S): CASREACT 144:331255; MARPAT 144:331255

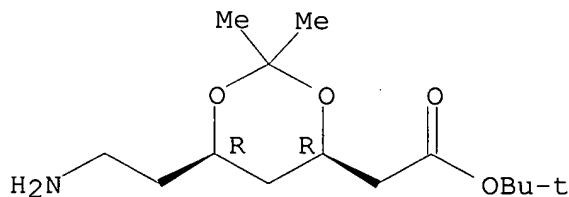
IT 125995-13-3

RL: RCT (Reactant); RACT (Reactant or reagent)  
(process for preparation of atorvastatin)

RN 125995-13-3 CAPLUS

CN 1,3-Dioxane-4-acetic acid, 6-(2-aminoethyl)-2,2-dimethyl-,  
1,1-dimethylethyl ester, (4R,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



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IT 125971-95-1P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);

RACT

(Reactant or reagent)

(process for preparation of atorvastatin)

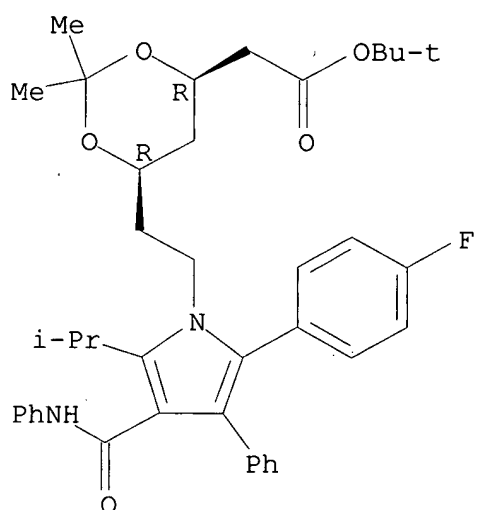
RN 125971-95-1 CAPLUS

CN 1,3-Dioxane-4-acetic acid,

6-[2-[2-(4-fluorophenyl)-5-(1-methylethyl)-3-

phenyl-4-[(phenylamino)carbonyl]-1H-pyrrol-1-yl]ethyl]-2,2-dimethyl-,  
1,1-dimethylethyl ester, (4R,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



AB The invention relates to a process for the preparation of pyrroles or their pharmaceutically-acceptable salts which involves reacting an amino compound  $H_2NCH_2CH_2CH(OR)CH_2CH(OR)CH_2CO_2R_1$  (each R is independently H or a hydrolyzable protecting group or combine to form a hydrolyzable cyclic protecting group;  $R_1$  is H, alkyl or a cation) with

a

diketone  $R_2COCHR_3CHR_4COR_5$  [ $R_2$  is 1- or 2-naphthyl, cycloalkyl, norbornenyl, (un)substituted aryl, benzyl, 2-, 3-, or 4-pyridinyl or N-oxide;  $R_3$ ,  $R_4$  are independently H, alkyl, cycloalkyl, (un)substituted aryl, cyano, trifluoromethyl or carbamoyl;  $R_5$  is alkyl, cycloalkyl or trifluoromethyl] in the presence of a catalyst in at least one solvent. An example describes the synthesis of atorvastatin calcium salt by treating (4R-cis)-1,1-dimethylethyl

6-(2-aminoethyl)-2,2-

dimethyl-1,3-dioxane-4-acetate with 2-[1-phenyl-2-(4-fluorophenyl)-2-oxoethyl]-4-methyl-N-phenyl-3-oxo pentanamide in heptane/THF/toluene in the presence of heptanoic acid, followed by hydrolysis using indion 525 resin.

10/500,023

L10 ANSWER 3 OF 90 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2006:13869 CAPLUS

DOCUMENT NUMBER: 144:108142

TITLE: Chemoselective catalytic oxidative processes  
to produce aldehyde group-containing intermediates  
for

INVENTOR(S): rosuvastatin preparation  
Gudipati, Srinivasulu; Katkam, Srinivas; Sagyam,  
Rajeshwar Reddy; Kudavalli, Jaya Satyanaraya

PATENT ASSIGNEE(S): India

SOURCE: U.S. Pat. Appl. Publ., 4 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2006004200	A1	20060105	US 2005-157552	20050621
PRIORITY APPLN. INFO.:			US 2004-581480P	P 20040621

OTHER SOURCE(S): CASREACT 144:108142

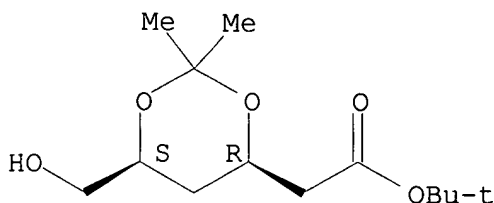
IT 124655-09-0

RL: RCT (Reactant); RACT (Reactant or reagent)  
(chemoselective catalytic oxidative processes to produce  
aldehyde group-containing intermediates for rosuvastatin preparation  
)

RN 124655-09-0 CAPLUS

CN D-erythro-Hexonic acid, 2,4-dideoxy-3,5-O-(1-methylethylidene)-,  
1,1-dimethylethyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.



AB Intermediate compds. [e.g., tert-Bu

2-[(4R,6S)-6-formyl-2,2-dimethyl-1,3-

dioxan-4-yl]acetate] for preparing rosuvastatin are prepd

. by a process comprising chemoselectively oxidizing

hydroxymethyl groups [e.g., tert-Bu (4R-cis)-6-(hydroxymethyl)-2,2-

dimethyl-1,3-dioxane-4-acetate] into aldehyde groups using sodium

hypochlorite as the oxidant and 2,2,6,6-tetramethylpiperidinyloxy free  
radical as a catalyst.

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L10 ANSWER 11 OF 90 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:965237 CAPLUS

DOCUMENT NUMBER: 141:410757

TITLE: Process for the preparation of  
(4-hydroxy-6-oxo-tetrahydropyran-2-yl)acetonitrile  
and

derivatives thereof

INVENTOR(S): Mink, Daniel; Wolberg, Michael; Boesten, Wilhelmus  
Hubertus Joseph; Sereinig, Natascha

PATENT ASSIGNEE(S): DSM IP Assets B.V., Neth.

SOURCE: PCT Int. Appl., 25 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004096788	A1	20041111	WO 2004-NL284	20040428
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2004234308	A1	20041111	AU 2004-234308	20040428
CA 2524457	AA	20041111	CA 2004-2524457	20040428
EP 1620423	A1	20060201	EP 2004-730128	20040428
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK				
BR 2004009866	A	20060516	BR 2004-9866	20040428
CN 1780826	A	20060531	CN 2004-80011792	20040428
NO 2005005694	A	20060202	NO 2005-5694	20051201
PRIORITY APPLN. INFO.:			EP 2003-101227	A 20030502
			WO 2004-NL284	W 20040428

OTHER SOURCE(S): CASREACT 141:410757; MARPAT 141:410757

IT 714963-28-7P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);

RACT

(Reactant or reagent)

(preparation and saponification of; preparation of

(4-hydroxy-6-oxotetrahydropyran-2-yl)acetonitrile and derivs.

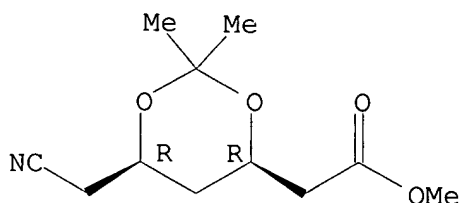
thereof)

10/500,023

RN 714963-28-7 CAPLUS

CN 1,3-Dioxane-4-acetic acid, 6-(cyanomethyl)-2,2-dimethyl-, methyl ester,  
(4R,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



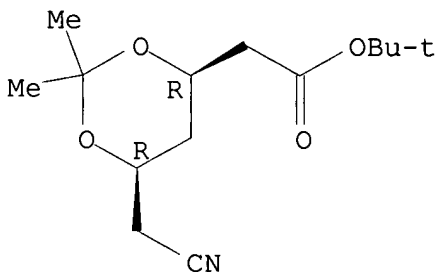
IT 125971-94-0P 791115-50-9P, [6-(Cyanomethyl)-2,2-dimethyl-1,3-dioxan-4-yl]acetic acid methyl ester 791115-51-0P, [6-(Cyanomethyl)-2,2-dimethyl-1,3-dioxan-4-yl]acetic acid ethyl ester 791115-53-2P, [6-(Cyanomethyl)-2,2-dimethyl-1,3-dioxan-4-yl]acetic acid isopropyl ester 791115-54-3P, [6-(Cyanomethyl)-2,2-dimethyl-1,3-dioxan-4-yl]acetic acid propyl ester 791115-55-4P, [6-(2-Aminoethyl)-2,2-dimethyl-1,3-dioxan-4-yl]acetic acid methyl ester 791115-56-5P, [6-(2-Aminoethyl)-2,2-dimethyl-1,3-dioxan-4-yl]acetic acid ethyl ester 791115-57-6P, [6-(2-Aminoethyl)-2,2-dimethyl-1,3-dioxan-4-yl]acetic acid isopropyl ester 791115-58-7P, [6-(2-Aminoethyl)-2,2-dimethyl-1,3-dioxan-4-yl]acetic acid propyl ester

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of (4-hydroxy-6-oxotetrahydropyran-2-yl)acetonitrile and derivs. thereof)

RN 125971-94-0 CAPLUS

CN 1,3-Dioxane-4-acetic acid, 6-(cyanomethyl)-2,2-dimethyl-,  
1,1-dimethylethyl ester, (4R,6R)- (9CI) (CA INDEX NAME)

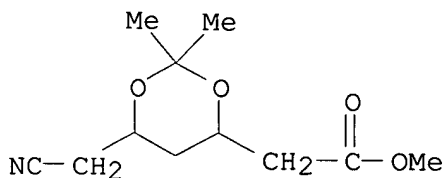
Absolute stereochemistry.



RN 791115-50-9 CAPLUS

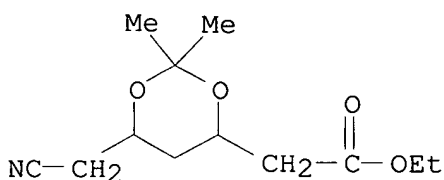
CN 1,3-Dioxane-4-acetic acid, 6-(cyanomethyl)-2,2-dimethyl-, methyl ester  
(9CI) (CA INDEX NAME)

10/500,023



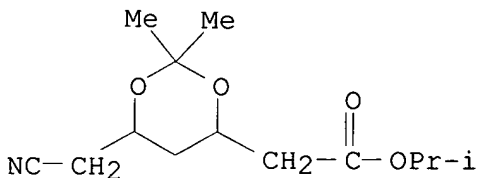
RN 791115-51-0 CAPLUS

CN 1,3-Dioxane-4-acetic acid, 6-(cyanomethyl)-2,2-dimethyl-, ethyl ester  
(9CI) (CA INDEX NAME)



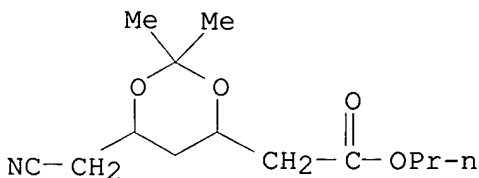
RN 791115-53-2 CAPLUS

CN 1,3-Dioxane-4-acetic acid, 6-(cyanomethyl)-2,2-dimethyl-, 1-methylethyl  
ester (9CI) (CA INDEX NAME)



RN 791115-54-3 CAPLUS

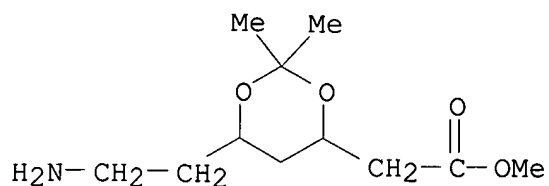
CN 1,3-Dioxane-4-acetic acid, 6-(cyanomethyl)-2,2-dimethyl-, propyl ester  
(9CI) (CA INDEX NAME)



RN 791115-55-4 CAPLUS

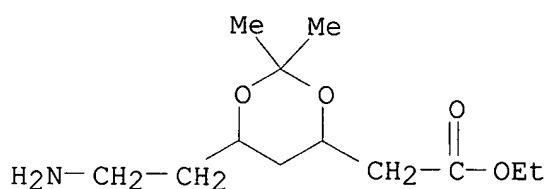
CN 1,3-Dioxane-4-acetic acid, 6-(2-aminoethyl)-2,2-dimethyl-, methyl ester  
(9CI) (CA INDEX NAME)

10/500,023



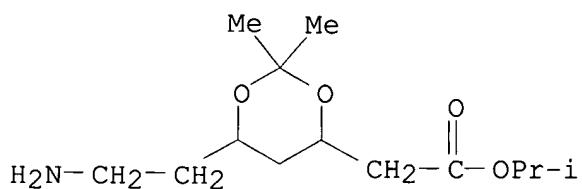
RN 791115-56-5 CAPLUS

CN 1,3-Dioxane-4-acetic acid, 6-(2-aminoethyl)-2,2-dimethyl-, ethyl ester  
(9CI) (CA INDEX NAME)



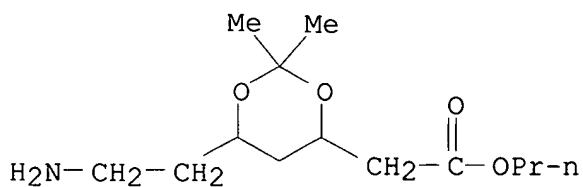
RN 791115-57-6 CAPLUS

CN 1,3-Dioxane-4-acetic acid, 6-(2-aminoethyl)-2,2-dimethyl-,  
1-methylethyl  
ester (9CI) (CA INDEX NAME)

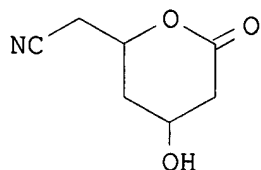


RN 791115-58-7 CAPLUS

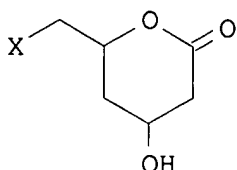
CN 1,3-Dioxane-4-acetic acid, 6-(2-aminoethyl)-2,2-dimethyl-, propyl ester  
(9CI) (CA INDEX NAME)



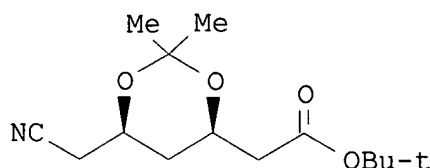
GI



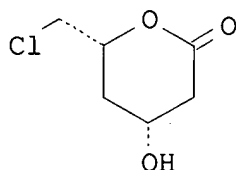
I



II



III



IV

AB The invention relates to a process for the preparation of (4-hydroxy-6-oxotetrahydropyran-2-yl)acetonitrile (I) from 6-X-substituted-methyl-4-hydroxytetrahydro-pyran-2-one II [X = leaving group], by reacting 6-X-substituted-methyl-4-hydroxy-tetrahydro-pyran-2-one with a cyanide ion (-CN) in water and by subsequent lowering of the pH to a pH between 0 and 5. (4-hydroxy-6-oxo-tetrahydro-pyran-2-yl)acetonitrile and other compds. obtainable from (4-hydroxy-6-oxo-tetrahydro-pyran-2-yl)acetonitrile may suitably be used in the preparation of a pharmaceutical preparation, more in particular in the preparation of statins, more in particular in the prepn . of Atorvastatine or a salt thereof, for instance its calcium salt.

The

invention also relates to (4-hydroxy-6-oxo-tetrahydro-pyran-2-yl)acetonitrile and other compds. obtainable there from, such as atorvastatin. Thus,.

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 12 OF 90 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:95663 CAPLUS

DOCUMENT NUMBER: 140:146148

TITLE: Improved preparation of optically active 6-sulfonyloxymethyl-1,3-dioxane-4-ylacetates as intermediates for HMG CoA reductase inhibitors  
INVENTOR(S): Kishimoto, Shigeki; Nishiyama, Akira; Nagashima, Nobuo; Inoue, Kenji

10/500,023

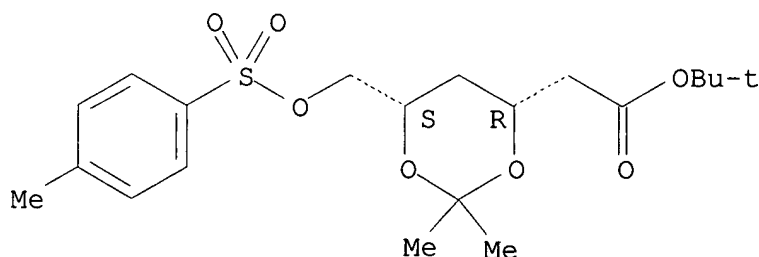
PATENT ASSIGNEE(S): Kanegafuchi Chemical Industry Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 20 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004035514	A2	20040205	JP 2002-198020	20020705
WO 2004011420	A1	20040205	WO 2003-JP8572	20030707

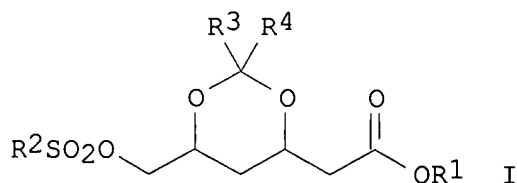
W: CA, IN, US  
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,  
IT, LU, MC, NL, PT, RO, SE, SI, SK, TR  
PRIORITY APPLN. INFO.: JP 2002-198020 A 20020705

OTHER SOURCE(S): MARPAT 140:146148  
IT 136006-37-6P  
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP  
(Preparation)  
(optically active; preparation of optically active  
(sulfonyloxymethyl)dioxanylacetates as intermediates for HMG CoA  
reductase inhibitors)  
RN 136006-37-6 CAPLUS  
CN D-erythro-Hexonic acid, 2,4-dideoxy-3,5-O-(1-methylethylidene)-,  
1,1-dimethylethyl ester, 4-methylbenzenesulfonate (9CI) (CA INDEX  
NAME)

Absolute stereochemistry.



GI



AB Optically active title compds. I [R1, R2 = (un)substituted C1-12 alkyl, (un)substituted C6-12 aryl, (un)substituted C7-12 aralkyl; R3, R4 = H, C1-12 alkyl, C6-12 aryl, C7-12 aralkyl; R3R4 may form ring] are prepared by sulfonylation of optically active HOCH2CH(OH)CH2COCH2CO2R1 (R1 = same as above) in the presence of bases, stereoselective reduction of the resulting optically active R2SO3CH2CH(OH)CH2COCH2CO2R1 (R1, R2 = same as above), and acetalization in the presence of acid catalysts. Thus, tert-Bu (5S)-5,6-dihydroxy-3-oxohexanoate was tosylated and hydrogenated with NaBH4 in the presence of Et2BOMe to give tert-Bu (3R,5S)-3,5-dihydroxy-6-[(p-methylphenyl)sulfonyloxy]hexanoate. Cyclization of the product in the presence of pyridinium p-toluenesulfonate gave the corresponding dioxane derivative

L10 ANSWER 13 OF 90 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2004:1009717 CAPLUS  
 DOCUMENT NUMBER: 141:425576  
 TITLE: Asymmetric hydrogenation catalyst  
 INVENTOR(S): Proctor, Lee David; Warr, Antony John; Lathom, Elliot  
 James  
 PATENT ASSIGNEE(S): Phoenix Chemicals Limited, UK  
 SOURCE: Brit. UK Pat. Appl., 18 pp.  
 CODEN: BAXXDU  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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GB 2401864	A1	20041124	GB 2003-11658	20030521
AU 2004241183	A1	20041202	AU 2004-241183	20040426
CA 2526497	AA	20041202	CA 2004-2526497	20040426
WO 2004103560	A1	20041202	WO 2004-GB1755	20040426
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1628762	A1	20060301	EP 2004-729454	20040426

10/500,023

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK  
PRIORITY APPLN. INFO.: GB 2003-11658 A 20030521

WO 2004-GB1755 W 20040426

OTHER SOURCE(S): CASREACT 141:425576

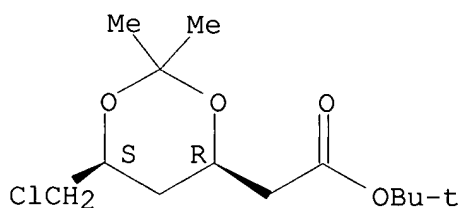
IT 154026-94-5P

RL: IMF (Industrial manufacture); PREP (Preparation)  
(asym. hydrogenation catalyst)

RN 154026-94-5 CAPLUS

CN 1,3-Dioxane-4-acetic acid, 6-(chloromethyl)-2,2-dimethyl-,  
1,1-dimethylethyl ester, (4R,6S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



AB The present invention concerns a catalytic composition comprising a catalyst effective for catalyzing asym. hydrogenation reactions, which catalyst requires acid activation, an acidic material effective for activating the catalyst, and a buffering compound or composition capable of forming, in the presence of the acidic material, an acetal, a ketal, a hemiacetal, and/or a hemiketal. The invention also relates to an asym. hydrogenation process utilizing such a catalytic composition, and to the use of such a catalytic composition for improving the enantiomeric excess of a desired asym. hydrogenated product.

REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE  
FORMAT

L10 ANSWER 14 OF 90 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:356390 CAPLUS

DOCUMENT NUMBER: 141:88974

TITLE: Development of an efficient, scalable,  
aldolase-catalyzed process for  
enantioselective synthesis of statin  
intermediates

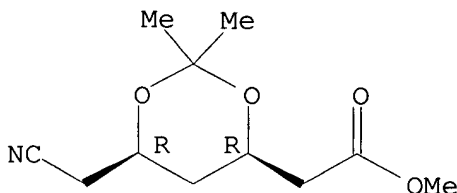
AUTHOR(S): Greenberg, William A.; Varvak, Alexander; Hanson,  
Sarah R.; Wong, Kelvin; Huang, Hongjun; Chen, Pei;  
Burk, Mark J.

CORPORATE SOURCE: Diversa Corporation, San Diego, CA, 92121, USA

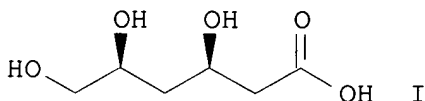
10/500,023

SOURCE: Proceedings of the National Academy of Sciences of  
the United States of America (2004), 101(16), 5788-5793  
CODEN: PNASA6; ISSN: 0027-8424  
PUBLISHER: National Academy of Sciences  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 141:88974  
IT 714963-28-7P  
RL: BPN (Biosynthetic preparation); SPN (Synthetic preparation); BIOL  
(Biological study); PREP (Preparation)  
(development of efficient scalable aldolase-catalyzed process  
for enantioselective synthesis of statin intermediates)  
RN 714963-28-7 CAPLUS  
CN 1,3-Dioxane-4-acetic acid, 6-(cyanomethyl)-2,2-dimethyl-, methyl ester,  
(4R,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



GI



AB A process is reported for efficient, enantioselective production of  
key intermediates, e.g. hexanoic acid I, for the common chiral side  
chain  
of statin-type cholesterol-lowering drugs such as Lipitor  
(atorvastatin)  
and Crestor (rosuvastatin). The process features a one-pot  
tandem aldol reaction catalyzed by a deoxyribose-5-phosphate aldolase  
(DERA) to form a 6-carbon intermediate with installation of two  
stereogenic centers from 2-carbon starting materials. An improvement  
of  
almost 400-fold in volumetric productivity relative to the published  
enzymic reaction conditions has been achieved, resulting in a com.  
attractive process that has been run on up to a 100-g scale in a  
single batch at a rate of 30.6 g/L per h. Catalyst load has  
been improved by 10-fold as well, from 20 to 2.0 wt % DERA. These  
improvements were achieved by a combination of discovery from

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environmental DNA of DERAs with improved activity and reaction optimization to overcome substrate inhibition. The two stereogenic centers are set by DERA with enantiomeric excess at >99.9% and diastereomeric excess at 96.6%. In addition, down-stream chemical steps have been developed to convert the enzymic product efficiently to versatile intermediates applicable to preparation of atorvastatin and rosuvastatin.

REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 15 OF 90 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:153542 CAPLUS

DOCUMENT NUMBER: 140:357089

TITLE: Sequential aldol condensation catalyzed by DERA mutant

Ser238Asp and a formal total synthesis of atorvastatin

AUTHOR(S): Liu, Junjie; Hsu, Che-Chang; Wong, Chi-Huey  
CORPORATE SOURCE: Department of Chemistry and the Skaggs Institute for

Chemical Biology, The Scripps Research Institute, La

Jolla, CA, 92037, USA

SOURCE: Tetrahedron Letters (2004), 45(11), 2439-2441

CODEN: TELEAY; ISSN: 0040-4039

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 140:357089

IT 682356-86-1P 682356-88-3P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT

(Reactant or reagent)

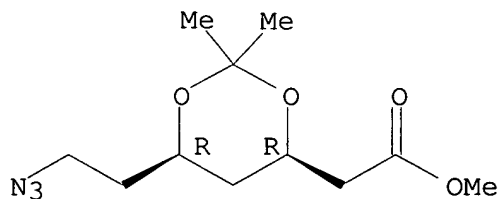
(synthesis of atorvastatin)

RN 682356-86-1 CAPLUS

CN 1,3-Dioxane-4-acetic acid, 6-(2-azidoethyl)-2,2-dimethyl-, methyl ester,

(4R,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

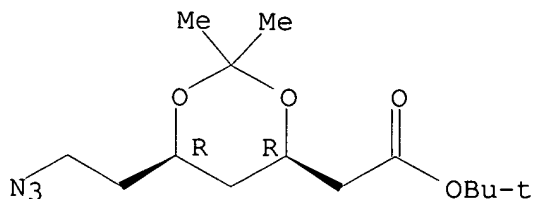


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RN 682356-88-3 CAPLUS

CN 1,3-Dioxane-4-acetic acid, 6-(2-azidoethyl)-2,2-dimethyl-,  
1,1-dimethylethyl ester, (4R,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



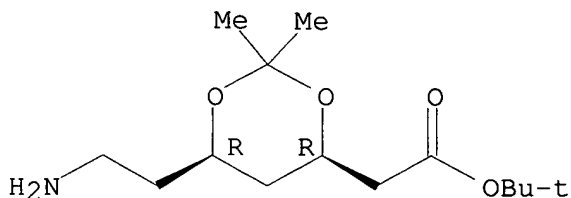
IT 125995-13-3P 676260-66-5P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(synthesis of atorvastatin)

RN 125995-13-3 CAPLUS

CN 1,3-Dioxane-4-acetic acid, 6-(2-aminoethyl)-2,2-dimethyl-,  
1,1-dimethylethyl ester, (4R,6R)- (9CI) (CA INDEX NAME)

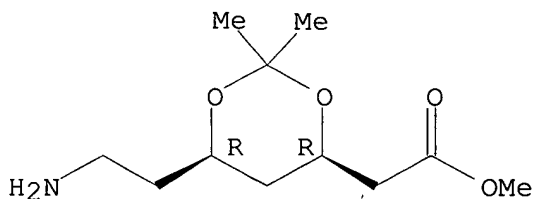
Absolute stereochemistry. Rotation (+).



RN 676260-66-5 CAPLUS

CN 1,3-Dioxane-4-acetic acid, 6-(2-aminoethyl)-2,2-dimethyl-, methyl  
ester,  
(4R,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



AB A mutant d-2-deoxyribose-5-phosphate aldolase (DERA), Ser238Asp, was  
used

10/500,023

to prepare  $\beta$ -hydroxy- $\delta$ -lactol synthons and a key intermediate for atorvastatin synthesis.

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE  
FORMAT

L10 ANSWER 16 OF 90 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:288770 CAPLUS

DOCUMENT NUMBER: 141:6961

TITLE: Strategy for enantio- and diastereoselective syntheses of all possible stereoisomers of 1,3-polyol arrays based on a highly catalyst-controlled epoxidation of  $\alpha,\beta$ -unsaturated morpholinyl amides: application to natural product synthesis

AUTHOR(S): Tosaki, Shin-ya; Horiuchi, Yoshihiro; Nemoto, Tetsuhiro; Ohshima, Takashi; Shibasaki, Masakatsu

CORPORATE SOURCE: Graduate School of Pharmaceutical Sciences, The University of Tokyo, Tokyo, 113-0033, Japan

SOURCE: Chemistry--A European Journal (2004), 10(6), 1527-1544

CODEN: CEUJED; ISSN: 0947-6539

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 141:6961

IT 502690-42-8P 502690-43-9P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);

RACT

(Reactant or reagent)

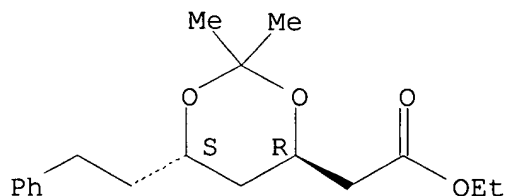
(asym. and diastereoselective syntheses of all stereoisomers of 1,3-polyols via Sm-(S)-BINOL-Ph<sub>3</sub>AsO-catalyzed epoxidn. of morpholinyl amides and application to natural product synthesis)

RN 502690-42-8 CAPLUS

CN 1,3-Dioxane-4-acetic acid, 2,2-dimethyl-6-(2-phenylethyl)-, ethyl ester,

(4R,6S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



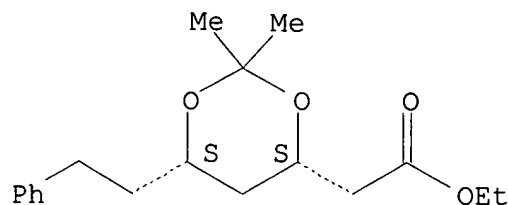
RN 502690-43-9 CAPLUS

CN 1,3-Dioxane-4-acetic acid, 2,2-dimethyl-6-(2-phenylethyl)-, ethyl ester,

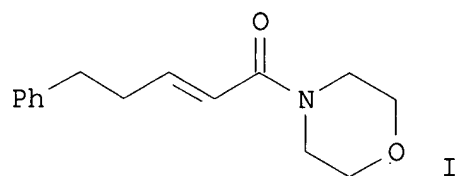
10/500,023

(4S,6S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



GI



AB We describe a new strategy for enantio- and diastereoselective syntheses of all possible stereoisomers of 1,3-polyol arrays. This strategy relies on a highly catalyst-controlled epoxidn. of  $\alpha,\beta$ -unsatd. morpholinyl amides, e.g. I, promoted by the Sm-BINOL-Ph<sub>3</sub>As=O (1:1:1) complex, followed by a conversion of morpholinyl amides into ketones and diastereoselective ketone reduction. Highly enantio- (up to >99% ee) or diastereoselective (up to >99.5:0.5) epoxidn. was achieved using 5-10 mol% of the Sm complex to afford synthetically very useful, nearly optically pure  $\alpha,\beta$ -epoxy morpholinyl amides. Stereoselectivity of the epoxidn. was controlled by the chirality of BINOL with overwhelming inherent diastereofacial preference for the substrate. Combination with the syn- and anti-selective ketone reduction with the highly catalyst-controlled epoxidn. allowed for an iterative strategy for the syntheses of all possible stereoisomers of 1,3-polyol arrays. Eight possible stereoisomers of 1,3,5,7-tetraol arrays were synthesized with high to excellent stereoselectivity. Moreover, the efficiency of the present strategy was successfully demonstrated by enantioselective syntheses of several 1,3-polyol/ $\alpha$ -pyrone natural products, for example, cryptocaryolone diacetate.

REFERENCE COUNT: 129 THERE ARE 129 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE

RE

FORMAT

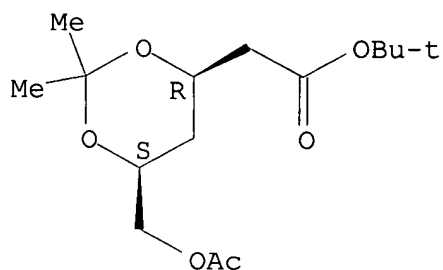
L10 ANSWER 17 OF 90 CAPLUS COPYRIGHT 2006 ACS on STN DUPLICATE 1  
 ACCESSION NUMBER: 2003:511315 CAPLUS  
 DOCUMENT NUMBER: 139:85359  
 TITLE: Process for the preparation of  
 optically active 2-[6-(substituted  
 alkyl)-1,3-dioxan-4-yl]acetates from chiral  
 epoxybutanoates and vinylmagnesium bromide or  
 chloride.  
 INVENTOR(S): Lee, Inhee; Lee, Seungjoo  
 PATENT ASSIGNEE(S): Choongwae Pharma Corporation, S. Korea  
 SOURCE: PCT Int. Appl., 29 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003053950	A1	20030703	WO 2002-KR1540	20020813
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
KR 2003050940	A	20030625	KR 2001-81659	20011220
AU 2002325570	A1	20030709	AU 2002-325570	20020813
JP 2005519045	T2	20050630	JP 2003-554666	20020813
US 2005148784	A1	20050707	US 2003-500023	20020813
PRIORITY APPLN. INFO.:			KR 2001-81659	A 20011220
			WO 2002-KR1540	W 20020813

OTHER SOURCE(S): CASREACT 139:85359; MARPAT 139:85359  
 IT 154026-95-6P  
 RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic  
 preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (preparation of optically active dioxanacetates from chiral  
 epoxybutanoates and vinylmagnesium bromide or chloride)  
 RN 154026-95-6 CAPLUS  
 CN D-erythro-Hexonic acid, 2,4-dideoxy-3,5-O-(1-methylethylidene)-,  
 1,1-dimethylethyl ester, acetate (9CI) (CA INDEX NAME)

Absolute stereochemistry.

10/500,023



IT 124655-09-0P 125971-94-0P 125995-13-3P,  
(4R-cis)-1,1-Dimethylethyl 6-(2-aminoethyl)-2,2-dimethyl-1,3-dioxane-4-  
acetate

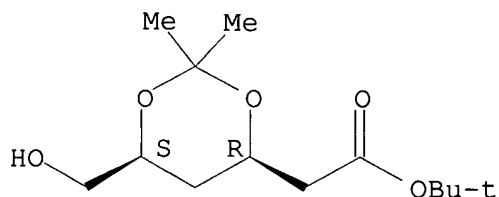
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP  
(Preparation)

(preparation of optically active dioxanacetates from chiral  
epoxybutanoates and vinylmagnesium bromide or chloride)

RN 124655-09-0 CAPLUS

CN D-erythro-Hexonic acid, 2,4-dideoxy-3,5-O-(1-methylethylidene)-,  
1,1-dimethylethyl ester (9CI) (CA INDEX NAME)

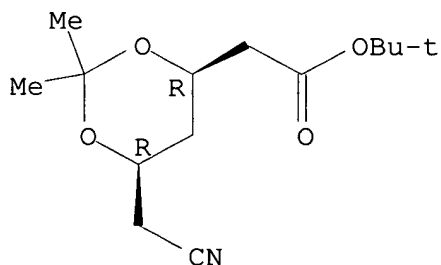
Absolute stereochemistry.



RN 125971-94-0 CAPLUS

CN 1,3-Dioxane-4-acetic acid, 6-(cyanomethyl)-2,2-dimethyl-,  
1,1-dimethylethyl ester, (4R,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



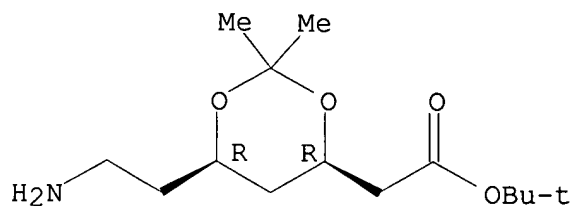
RN 125995-13-3 CAPLUS

CN 1,3-Dioxane-4-acetic acid, 6-(2-aminoethyl)-2,2-dimethyl-,

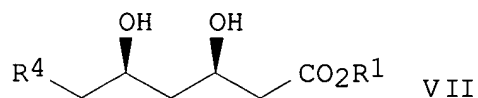
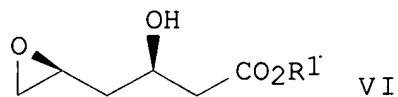
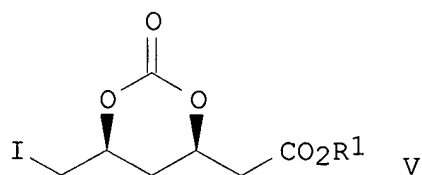
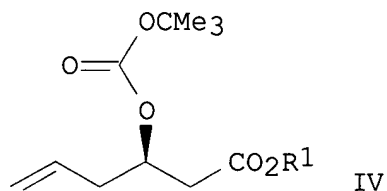
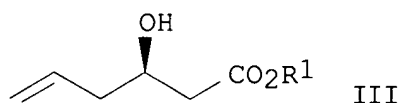
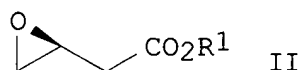
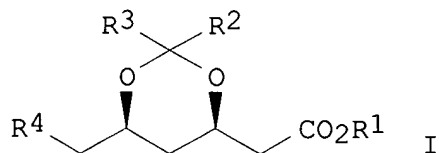
10/500,023

1,1-dimethylethyl ester, (4R,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



GI



AB Title compds. [I; R<sub>1</sub> = H, alkyl, aryl, alkylaryl; R<sub>2</sub>, R<sub>3</sub> = alkyl, Ph; R<sub>2</sub>R<sub>3</sub> = atoms to form a 6-membered ring; R<sub>4</sub> = OH, amino, alkylamino, N<sub>3</sub>, cyano, halo, aryloxy, alkoxy, arylalkoxy, alkyl, alkenyl, aryl, aminomethyl, etc.], were prepared via (a) reacting an epoxide (II) with

vinylmagnesium bromide/chloride to produce a 3-hydroxy compound (III);  
 (b) protecting the OH group by reaction with a dialkyl dicarbonate such as di-tert-Bu dicarbonate to produce (IV); (c) cyclization of IV by a iodolactone-forming reaction to produce (V); (d) treating V with a weak base such as K<sub>2</sub>CO<sub>3</sub> or Na<sub>2</sub>CO<sub>3</sub> to produce (VI); (e) producing a 1,3-diol compound of formula (VII) by a ring opening reaction of VI with nucleophiles in the presence of a metal catalyst and a phase transfer catalyst; (f) treating VII with an acetylating agent or a ketalizing agent in the presence of an acid catalyst and if necessary, exchanging the R<sub>4</sub> group (all variables as above).

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE  
 FORMAT

L10 ANSWER 18 OF 90 CAPLUS COPYRIGHT 2006 ACS on STN DUPLICATE 2

ACCESSION NUMBER: 2003:42238 CAPLUS

DOCUMENT NUMBER: 138:106243

TITLE: Process for the preparation of nitrile compounds by cyanation of optionally

protected

dihydroxy alkanesulfonates in the presence of phase transfer catalysts, and its application to the preparation of an atorvastatin intermediate.

INVENTOR(S): Blacker, Andrew John; Houson, Ian Nicholas; Wiffen, Jonathan William

PATENT ASSIGNEE(S): Avecia Limited, UK

SOURCE: PCT Int. Appl., 17 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003004459	A2	20030116	WO 2002-GB2964	20020627
WO 2003004459	A3	20030501		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
CA 2452683	AA	20030116	CA 2002-2452683	20020627

10/500,023

EP 1404646	A2	20040407	EP 2002-740915	20020627
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
CN 1522242	A	20040818	CN 2002-813106	20020627
JP 2004533483	T2	20041104	JP 2003-510427	20020627
US 2004254391	A1	20041216	US 2004-482381	20040719
PRIORITY APPLN. INFO.:			GB 2001-16212	A 20010703
			WO 2002-GB2964	W 20020627

OTHER SOURCE(S): CASREACT 138:106243; MARPAT 138:106243

IT 135054-68-1P, (6S-Methanesulfonyloxymethyl-2,2-dimethyl-[1,3]dioxan-4R-yl)-acetic acid tert-butyl ester 477873-79-3P, (6S-Trifluoromethanesulfonyloxymethyl-2,2-dimethyl-[1,3]dioxan-4R-yl)acetic acid tert-butyl ester 485817-64-9P,

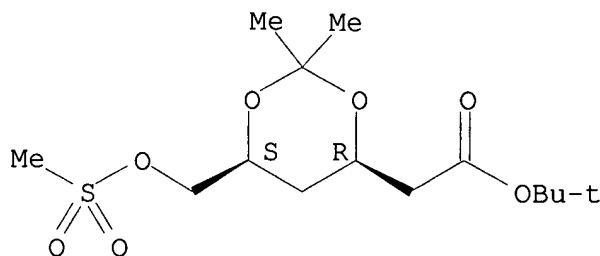
(6S-Fluoromethanesulfonyloxymethyl-2,2-dimethyl-[1,3]dioxan-4R-yl)acetic acid tert-butyl ester 485817-65-0P, (6S-Difluoromethanesulfonyloxymethyl-2,2-dimethyl-[1,3]dioxan-4R-yl)acetic acid tert-butyl ester

RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent) (process intermediate; improved preparation of nitriles by mesylation of alcs. and cyanation of mesylates using phase transfer catalysts for preparation of key atorvastatin intermediate)

RN 135054-68-1 CAPLUS

CN D-erythro-Hexonic acid, 2,4-dideoxy-3,5-O-(1-methylethylidene)-, 1,1-dimethylethyl ester, methanesulfonate (9CI) (CA INDEX NAME)

Absolute stereochemistry.

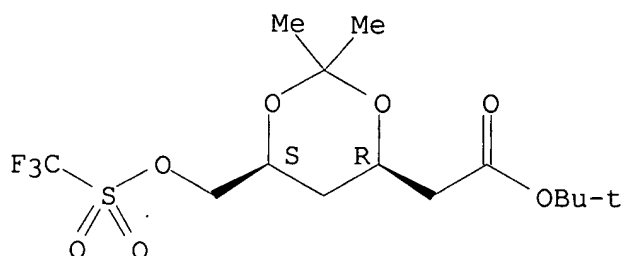


RN 477873-79-3 CAPLUS

CN D-erythro-Hexonic acid, 2,4-dideoxy-3,5-O-(1-methylethylidene)-, 1,1-dimethylethyl ester, trifluoromethanesulfonate (9CI) (CA INDEX NAME)

Absolute stereochemistry.

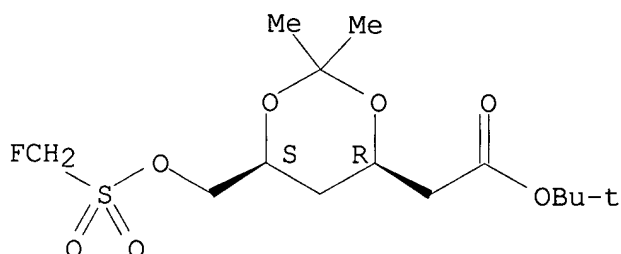
10/500,023



RN 485817-64-9 CAPLUS

CN D-erythro-Hexonic acid, 2,4-dideoxy-3,5-O-(1-methylethylidene)-, 1,1-dimethylethyl ester, fluoromethanesulfonate (9CI) (CA INDEX NAME)

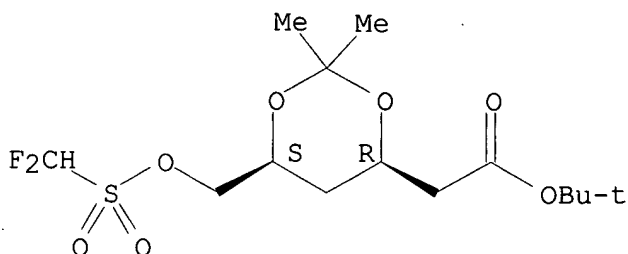
Absolute stereochemistry.



RN 485817-65-0 CAPLUS

CN D-erythro-Hexonic acid, 2,4-dideoxy-3,5-O-(1-methylethylidene)-, 1,1-dimethylethyl ester, difluoromethanesulfonate (9CI) (CA INDEX NAME)

Absolute stereochemistry.



IT 124655-09-0, (6S-Hydroxymethyl-2,2-dimethyl-[1,3]dioxan-4R-yl)acetic acid tert-butyl ester

RL: RCT (Reactant); RACT (Reactant or reagent)

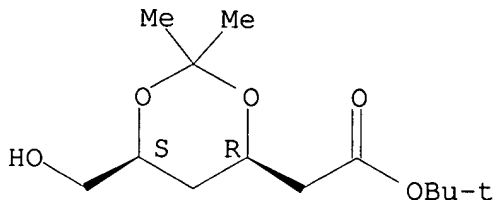
(starting material; improved preparation of nitriles by mesylation of alcs. and cyanation of mesylates using phase transfer catalysts for preparation of key atorvastatin intermediate)

RN 124655-09-0 CAPLUS

10/500,023

CN D-erythro-Hexonic acid, 2,4-dideoxy-3,5-O-(1-methylethylidene)-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.



IT 125971-94-0P, (6R-Cyanomethyl-2,2-dimethyl-[1,3]dioxan-4R-yl)-acetic acid tert-butyl ester

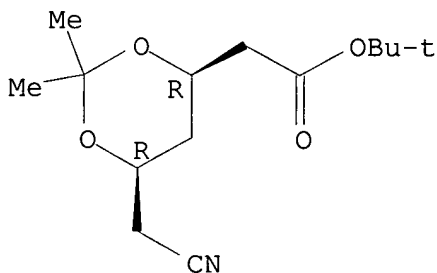
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)

(target intermediate; improved preparation of nitriles by mesylation of alcs. and cyanation of mesylates using phase transfer catalysts for preparation of key atorvastatin intermediate)

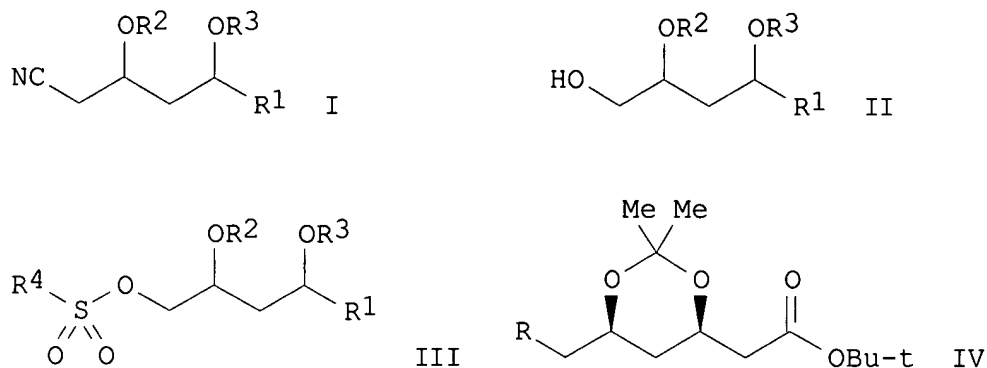
RN 125971-94-0 CAPLUS

CN 1,3-Dioxane-4-acetic acid, 6-(cyanomethyl)-2,2-dimethyl-, 1,1-dimethylethyl ester, (4R,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



GI



AB A process is provided for the preparation of a nitrile I by  
 (a) reaction of an alc. II, in a solvent and in the presence of a base,  
 with a sulfonylating agent  $\text{R}_4\text{SO}_2\text{X}$ , to give an alkanesulfonate III, and  
 (b) reaction of the latter with a cyanide source in the presence of a  
 phase-transfer catalyst [wherein:  $\text{R}_1 = \text{H}$ ,  
 optionally substituted acyl, alkyl, aryl, or heteroaryl;  $\text{R}_2, \text{R}_3 = \text{H}$ ,  
 hydroxy protecting group;  $\text{R}_4 =$  optionally substituted alkyl, aryl, or  
 heteroaryl;  $\text{X} =$  halogen]. The process is particularly  
 applicable to the preparation of the well-known hypolipidemic and  
 hypocholesterolemic agent atorvastatin. Previous processes for  
 cyanation of similar sulfonate esters containing a 1,3-dioxane ring are  
 extremely slow and potentially involve unstable intermediates, both of  
 which are potentially limiting to com. application. For example, the  
 alc.  
 IV [ $\text{R} = \text{OH}$ ] was treated with  $\text{MeSO}_2\text{Cl}$  and  $\text{Et}_3\text{N}$  in PhMe at  $22 \pm 6^\circ$   
 and stirred for 1 h to give 92-95% IV [ $\text{R} = \text{OSO}_2\text{Me}$ ]. This mesylate  
 reacted  
 with KCN in an aqueous slurry in the presence of  
 dicyclohexano-18-crown-6 (  
 phase-transfer catalyst) at  $35-80^\circ$   
 until complete (24 h, 80% reaction yield by GLC). Extraction into  
 PhMe,  
 filtration through Fuller's earth to decolorize the product and remove  
 catalyst, evaporation, and recrystn. from hexane, gave crystalline IV  
 [ $\text{R} = \text{cyano}$ ] in  
 60% yield. A similar invention run in a borate buffer took over 65 h  
 and  
 gave a slightly lower yield. In contrast, a comparison cyanation using  
 $\text{NaCN}$  in DMSO at  $45^\circ$  for 192 h gave powdered I [ $\text{R} = \text{cyano}$ ] after  
 recrystn. in only 51% isolated yield.

L10 ANSWER 19 OF 90 CAPLUS COPYRIGHT 2006 ACS on STN DUPLICATE 3  
 ACCESSION NUMBER: 2003:509915 CAPLUS  
 DOCUMENT NUMBER: 139:69272  
 TITLE: Esterification process using phase-transfer

10/500,023

phosphium compound catalysts for the  
preparation of 2-(6-substituted-1,3-dioxane-4-  
yl) acetic acid derivatives

INVENTOR(S): Hof, Robert Patrick  
PATENT ASSIGNEE(S): DSM N.V., Neth.  
SOURCE: Eur. Pat. Appl., 9 pp.  
CODEN: EPXXDW  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1323717	A1	20030702	EP 2001-794	20011227
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
CA 2470647	AA	20030724	CA 2002-2470647	20021209
WO 2003059901	A1	20030724	WO 2002-NL876	20021209
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2002359093	A1	20030730	AU 2002-359093	20021209
EP 1461331	A1	20040929	EP 2002-793596	20021209
EP 1461331	B1	20060308		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
BR 2002015310	A	20041221	BR 2002-15310	20021209
CN 1608058	A	20050420	CN 2002-826201	20021209
US 2005090674	A1	20050428	US 2003-501250	20021209
JP 2005519898	T2	20050707	JP 2003-560004	20021209
NZ 533445	A	20060224	NZ 2002-533445	20021209
AT 319701	E	20060315	AT 2002-793596	20021209
ZA 2004004482	A	20050926	ZA 2004-4482	20040607
NO 2004003159	A	20040723	NO 2004-3159	20040723
PRIORITY APPLN. INFO.:			EP 2001-794	A 20011227
			WO 2002-NL876	W 20021209

OTHER SOURCE(S): CASREACT 139:69272; MARPAT 139:69272  
IT 154026-94-5

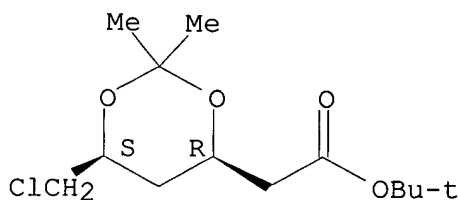
RL: RCT (Reactant); RACT (Reactant or reagent)  
(esterification process using phase-transfer phosphium compound catalysts for the preparation of 2-(6-substituted-1,3-dioxane-4-yl) acetic acid derivs.)

10/500,023

RN 154026-94-5 CAPLUS

CN 1,3-Dioxane-4-acetic acid, 6-(chloromethyl)-2,2-dimethyl-,  
1,1-dimethylethyl ester, (4R,6S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



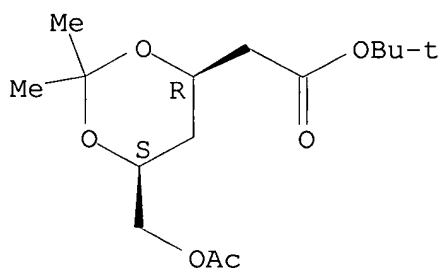
IT 154026-95-6P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(esterification process using phase-transfer phosphonium compound  
catalysts for the preparation of 2-(6-substituted-1,3-dioxane-4-  
yl) acetic acid derivs.)

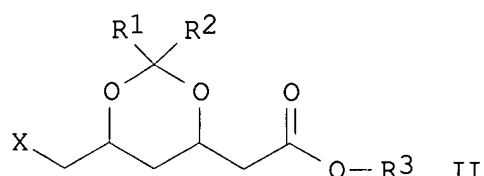
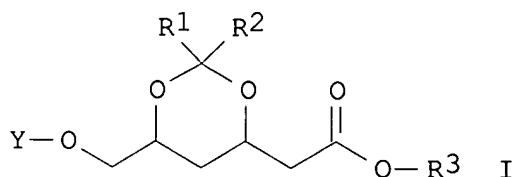
RN 154026-95-6 CAPLUS

CN D-erythro-Hexonic acid, 2,4-dideoxy-3,5-O-(1-methylethylidene)-,  
1,1-dimethylethyl ester, acetate (9CI) (CA INDEX NAME)

Absolute stereochemistry.



GI



AB 2-(6-Substituted-1,3-dioxane-4-yl) acetic acid derivs. [I; R1-R3 = C1-4 alkyl; R1R2 = 5- or 6-member cycloalkyl ring; Y = R4CO, R5SO2; R4, R5 = alkyl, aryl; e.g., tert-Bu 2-[(4R,6S)-2,2-dimethyl-6-[(methylcarbonyloxy)methyl]-1,3-dioxan-4-yl]acetate] are prepared in high yield and selectivity by the reaction of an oxylation agent (OY)nM

(M = Group IA metal, Group IIA metal; n = 1, 2; e.g., potassium acetate)

with the corresponding halogen-containing substrate [II; X = halogen; e.g.,

tert-Bu 2-[(4R,6S)-6-(chloromethyl)-2,2-dimethyl-1,3-dioxan-4-yl]acetate] in the presence of a phosphonium salt phase-transfer catalyst (e.g., tetrabutylphosphonium bromide).

REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS

FORMAT RECORD. ALL CITATIONS AVAILABLE IN THE RE

L10 ANSWER 22 OF 90 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:625703 CAPLUS

DOCUMENT NUMBER: 143:78192

TITLE: Process for preparing tert-butyl

(4R,6R)-[6-(2-aminoethyl)-2,2-dimethyl[1,3]dioxan-4-yl]acetate and intermediates for its preparation

INVENTOR(S): Radl, Stanislav

PATENT ASSIGNEE(S): Leciva, A. S., Czech Rep.

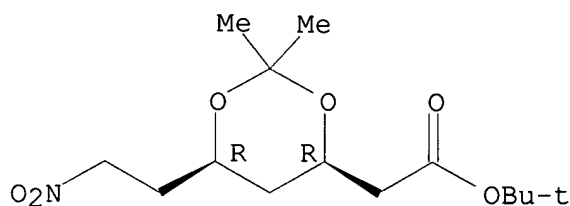
10/500,023

SOURCE: Czech Rep., 10 pp.  
CODEN: CZXXED  
DOCUMENT TYPE: Patent  
LANGUAGE: Czech  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CZ 292221	B6	20030813	CZ 2001-2431	20010629
PRIORITY APPLN. INFO.:			CZ 2001-2431	20010629

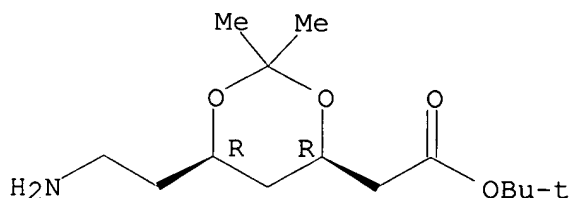
IT 619261-21-1P  
RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(process for preparing tert-Bu (4R,6R)-[6-(2-aminoethyl)-2,2-dimethyl[1,3]dioxan-4-yl]acetate and intermediates for its preparation)  
RN 619261-21-1 CAPLUS  
CN 1,3-Dioxane-4-acetic acid, 2,2-dimethyl-6-(2-nitroethyl)-, 1,1-dimethylethyl ester, (4R,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



IT 125995-13-3P  
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)  
(process for preparing tert-Bu (4R,6R)-[6-(2-aminoethyl)-2,2-dimethyl[1,3]dioxan-4-yl]acetate and intermediates for its preparation)  
RN 125995-13-3 CAPLUS  
CN 1,3-Dioxane-4-acetic acid, 6-(2-aminoethyl)-2,2-dimethyl-, 1,1-dimethylethyl ester, (4R,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB The present invention relates to a process for preparing tert-Bu (4R,6R)-[6-(2-aminoethyl)-2,2-dimethyl[1,3]dioxan-4-yl]acetate (I), an intermediate for synthesis of atorvastatin, which comprises (a) reacting tert-Bu (4R,6S)-[6-(2-formyl-2,2-dimethyl[1,3]dioxan-4-yl)acetate (II) with nitromethane in a suitable solvent, preferably in a lower alc., under catalysis, preferably KF, (b) reacting tert-Bu [6-(1-hydroxy-2-nitroethyl)-2,2-dimethyl[1,3]dioxan-4-yl]acetate (III) with an carboxylic acid anhydride, (c) reducing the obtained tert-Bu [6-(1-acyloxy-2-nitroethyl)-2,2-dimethyl[1,3]dioxan-4-yl]acetate IV [R = alkyl] with NaBH<sub>4</sub> in a suitable medium, such as aqueous medium, water-alc. medium or alc. medium, and (d) subjecting the obtained tert-Bu [2,2-dimethyl-6-(2-nitroethyl)[1,3]dioxan-4-yl]acetate (V) to hydrogenation under catalysts such as Raney nickel, palladium, or platinum in suitable solvents such as lower alcs., to obtain (4R,6R)-I.

L10 ANSWER 24 OF 90 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:72081 CAPLUS

DOCUMENT NUMBER: 136:118454

TITLE: Preparation of 2-(6-substituted-1,3-dioxane-4-yl)acetates

INVENTOR(S): Kooistra, Jacob Hermanus Mattheus Hero; Zeegers, Hubertus Josephus Marie; Mink, Daniel; Mulders, Joannes Maria Cornelis Antonius

PATENT ASSIGNEE(S): DSM N.V., Neth.

SOURCE: PCT Int. Appl., 17 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002006266	A1	20020124	WO 2001-NL535	20010712
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
NL 1015744	C2	20020122	NL 2000-1015744	20000719
CA 2415963	AA	20020124	CA 2001-2415963	20010712
AU 2001075830	A5	20020130	AU 2001-75830	20010712
EP 1317440	A1	20030611	EP 2001-953373	20010712
EP 1317440	B1	20060927		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
BR 2001012535	A	20030701	BR 2001-12535	20010712
JP 2004504315	T2	20040212	JP 2002-512170	20010712
NZ 523703	A	20040827	NZ 2001-523703	20010712
EE 200300024	A	20041015	EE 2003-24	20010712
CN 1680363	A	20051012	CN 2005-10065744	20010712
RU 2266903	C2	20051227	RU 2003-104825	20010712
EP 1700854	A1	20060913	EP 2006-10837	20010712
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
NO 2003000025	A	20030103	NO 2003-25	20030103
US 2003158426	A1	20030821	US 2003-333351	20030117
US 6870059	B2	20050322		
ZA 2003000478	A	20040126	ZA 2003-478	20030117
US 2005148785	A1	20050707	US 2005-53090	20050207
AU 2006203127	A1	20060810	AU 2006-203127	20060721
PRIORITY APPLN. INFO.:				
			NL 2000-1015744	A 20000719
			AU 2001-75830	A3 20010712
			CN 2001-812999	A3 20010712
			EP 2001-953373	A3 20010712
			WO 2001-NL535	W 20010712
			US 2003-333351	A1 20030117

OTHER SOURCE(S): CASREACT 136:118454; MARPAT 136:118454  
 IT 154026-94-5P 154026-95-6P 391218-16-9P  
 RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic  
 preparation); PREP (Preparation); RACT (Reactant or reagent)

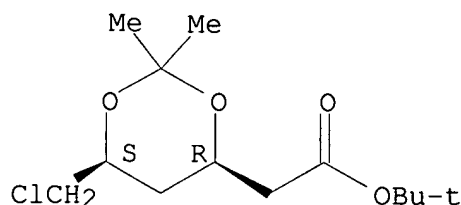
10/500,023

(preparation of 2-(6-substituted-1,3-dioxane-4-yl)acetates)

RN 154026-94-5 CAPLUS

CN 1,3-Dioxane-4-acetic acid, 6-(chloromethyl)-2,2-dimethyl-,  
1,1-dimethylethyl ester, (4R,6S)- (9CI) (CA INDEX NAME)

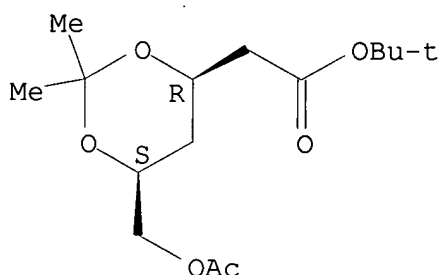
Absolute stereochemistry. Rotation (+).



RN 154026-95-6 CAPLUS

CN D-erythro-Hexonic acid, 2,4-dideoxy-3,5-O-(1-methylethylidene)-,  
1,1-dimethylethyl ester, acetate (9CI) (CA INDEX NAME)

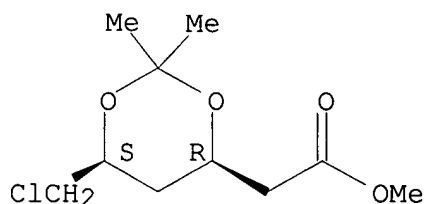
Absolute stereochemistry.



RN 391218-16-9 CAPLUS

CN 1,3-Dioxane-4-acetic acid, 6-(chloromethyl)-2,2-dimethyl-, methyl  
ester,  
(4R,6S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



IT 124655-09-0P

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP  
(Preparation)

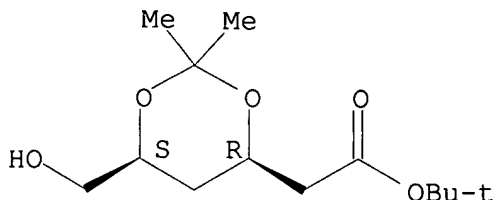
10/500,023

(preparation of 2-(6-substituted-1,3-dioxane-4-yl)acetates)

RN 124655-09-0 CAPLUS

CN D-erythro-Hexonic acid, 2,4-dideoxy-3,5-O-(1-methylethylidene)-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.



AB RCH<sub>2</sub>CH(OR<sub>4</sub>)CH<sub>2</sub>CH(OR<sub>5</sub>)CH<sub>2</sub>CO<sub>2</sub>R<sub>3</sub> (R = leaving group; R<sub>4</sub>R<sub>5</sub> = CR<sub>1</sub>R<sub>2</sub>; R<sub>1</sub>-R<sub>3</sub> = C<sub>1</sub>-3 alkyl) were prepared by treating RCH<sub>2</sub>CH(OR<sub>4</sub>)CH<sub>2</sub>CH(OH)CH<sub>2</sub>CO<sub>2</sub>R<sub>3</sub> (R<sub>3</sub>R<sub>4</sub> = bond) with an acetalization agent and an acid catalyst.

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE  
FORMAT

2.5 h to give 82% oxydiphthalic acid.

L10 ANSWER 37 OF 90 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1999:723026 CAPLUS

DOCUMENT NUMBER: 131:310642

TITLE: Process for producing 6-cyanomethyl-1,3-dioxane-4-acetic acid derivatives

INVENTOR(S): Mitsuda, Masaru; Miyazaki, Makoto; Inoue, Kenji

PATENT ASSIGNEE(S): Kaneka Corp., Japan

SOURCE: PCT Int. Appl., 32 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

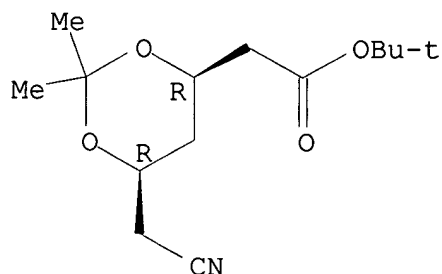
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9957109	A1	19991111	WO 1999-JP2272	19990428
W: CA, CN, HU, IN, JP, NO, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
CA 2329893	AA	19991111	CA 1999-2329893	19990428
EP 1077212	A1	20010221	EP 1999-917207	19990428
EP 1077212	B1	20030820		
R: BE, CH, DE, ES, FR, GB, IT, LI, NL, IE				

10/500,023

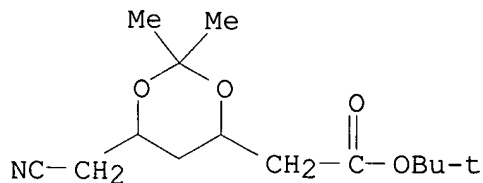
ES 2207202	T3	20040516	ES 1999-917207	19990428
US 6344569	B1	20020205	US 2001-674178	20010102
PRIORITY APPLN. INFO.:			JP 1998-121135	A 19980430
			WO 1999-JP2272	W 19990428

OTHER SOURCE(S): CASREACT 131:310642; MARPAT 131:310642  
IT 125971-94-0P 247592-53-6P  
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)  
(preparation of 6-cyanomethyl-1,3-dioxane-4-acetic acid derivs. as intermediate for HMG CoA reductase inhibitor atorvastatin)  
RN 125971-94-0 CAPLUS  
CN 1,3-Dioxane-4-acetic acid, 6-(cyanomethyl)-2,2-dimethyl-, 1,1-dimethylethyl ester, (4R,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



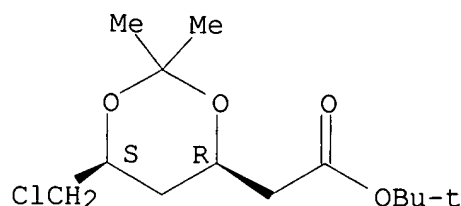
RN 247592-53-6 CAPLUS  
CN 1,3-Dioxane-4-acetic acid, 6-(cyanomethyl)-2,2-dimethyl-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)



IT 154026-94-5P 247592-52-5P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);  
RACT (Reactant or reagent)  
(preparation of 6-cyanomethyl-1,3-dioxane-4-acetic acid derivs. as intermediate for HMG CoA reductase inhibitor atorvastatin)  
RN 154026-94-5 CAPLUS  
CN 1,3-Dioxane-4-acetic acid, 6-(chloromethyl)-2,2-dimethyl-, 1,1-dimethylethyl ester, (4R,6S)- (9CI) (CA INDEX NAME)

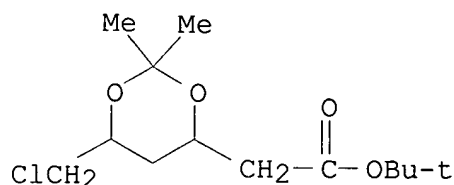
10/500,023

Absolute stereochemistry. Rotation (+).

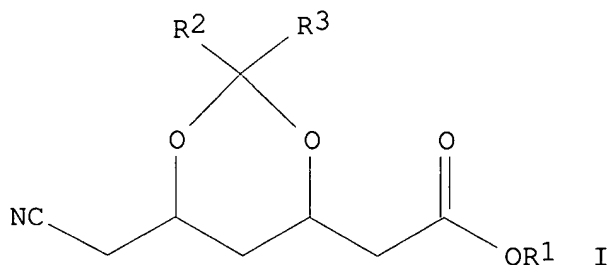


RN 247592-52-5 CAPLUS

CN 1,3-Dioxane-4-acetic acid, 6-(chloromethyl)-2,2-dimethyl-,  
1,1-dimethylethyl ester (9CI) (CA INDEX NAME)



GI



AB A process whereby 6-cyanomethyl-1,3-dioxane-4-acetic acid  
derivs. I (R1, R2, R3 = H, alkyl, aryl, aralkyl) which are important  
intermediates of an HMG CoA reductase inhibitor atorvastatin, can be  
industrially, easily and efficiently produced. This process  
comprises starting with a 3,5-dihydroxy-6-halohexane derivative,  
treating it  
with a cyanation agent to thereby substitute the halogen atom with the  
cyano group and forming an acetal of a diol by using an acetal-forming  
agent in the presence of an acid catalyst. Thus,  
1,1-dimethylethyl (4R,6S)-6-chloromethyl-2,2-dimethyl-1,3-dioxane-4-  
acetate was prepared in 2 steps from 1,1-dimethylethyl  
(3R,5S)-6-chloro-3,5-dihydroxyhexanoate.

REFERENCE COUNT: 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR  
THIS

10/500,023

RECORD. ALL CITATIONS AVAILABLE IN THE RE  
FORMAT

=> log y

COST IN U.S. DOLLARS

SINCE FILE	TOTAL
ENTRY	SESSION
358.82	556.29

FULL ESTIMATED COST

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE	TOTAL
ENTRY	SESSION
-67.50	-67.50

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STN INTERNATIONAL LOGOFF AT 12:57:38 ON 08 OCT 2006